PORTLAND CEMENT AND READY MIX
PLANT CALIBRATION CHECKLIST

References: I.M.527, 528, and noted specifications

STORAGE AND HANDLING OF MATERIALS

Aggregates: 2301.13

- Certified complying
- Separation of materials
- Storage area floor shall be a minimum of 18" of similar material
- Fine aggregate shall drain a minimum of 24 hours
- All aggregate shall drain a minimum of 24 hours on new bridge deck floors 2412.02

CEMENTITIOUS MATERIAL: 2301.13

- Approved certified sources
- No intermingling of products or sources
- Stored in suitable weatherproof enclosures

WATER

- Sample when required

ADMIXTURES

- Verify acceptance of lot
- Circulate 5 min. per 100 gal. of solution
- Proper storage to prevent freezing

PLANT REQUIREMENTS

Safety

- Guards, Ladders, Railings and Walkways
- Sampling location
- Proper template if belt sample
- Safety switches and belt lockouts in place
- Bins are structurally safe: 2001.06
- Settlement of footings is uniform
- Suitable wind protection for scale operation
- Automatic interlocks for projects over 6000 sq. yds: 2001.20 & 2301.13
- Weight indicator or digital readouts are in full view of the plant operator.

Scale Calibration: 2001.20

Calibration of batch plant scales as required by the specifications is performed by incrementally loading the scales with standard test weights and partial batches through the operating range of the scales. As each increment of load is applied, the actual observed weight and the required weight are compared. The differences plus or minus, are determined and converted to percentages of the required weight. If the percentage deviations are less than the tolerance allowed by the specifications and the scales are sensitive to the test loads, the scales will be considered in calibration. If the scales do not meet the various requirements, the contractor should be notified immediately and required to make the necessary repairs or adjustments. The engineer may order recalibration if the scale equipment malfunctions, material quantities do not agree with actual material quantities, or any repairs or replacement of equipment occurs.

- Calibrate scales to include the maximum weight for projected batches
- Commercially manufactured weights that have the weight stamped on the exterior and appear to be unaltered and in good condition may be assumed to meet the requirements of ASTM E 617
- Non-commercially manufactured test weights may be used in providing accumulating weight for loading the scales, if validated against commercially manufactured test weights.
- Accumulate calibration error at each increment that material replaces known weight

Note: Example uses 2000 lbs. of known weights applied at 1000 lb. increments. Accumulated error applies only when exchanging known weight with material.

Applied Wt.	Scale Reading	Error	Accum. Error	Wt. Replaced By Material
1000	995	- 5		
2000	1995	- 5	- 5*	yes
3000	2990	-10	-15	<
4000	3995	- 5	-10*	yes
5000	5000	0	-10	<
6000	6005	+ 5	- 5*	yes
7000	7010	+10	+ 5	<

Note: *Accumulated error is from last known error prior to material replacement.

< Intermediate errors are measured to determine specification compliance but are not part of the accumulated result.

As a guide, a working form to help record field calibration measurements is on page 4.

WATER CALIBRATION: 2001.20B

- Equipment shall be such that accuracy will not be affected by variations in pressure of the water supply
- Weighing equipment to verify water calibration shall meet 2001.20
- Repairs or adjustments will require equipment to be recalibrated

EQUIPMENT FOR DISPENSING LIQUID ADMIXTURES

- Calibrate per specification 2001.20C.
- Measuring container or digital read out shall be in view of plant operator.

TRUCK MIXER AND AGITATOR

- Meet the requirements of 2001.21B.
- Truck mixer certification (form # 820907) kept in truck and is up to date.

CONCRETE PLANT CALIBRATION WORK SHEET

DATE_____ ___PAVING PLANT
LOCATION_____ ___READY MIX PLANT

CEMENT SCALE - ACCURATE TO 0.5% OF BATCH WEIGHT

SENSITIVITY - EMPTY_____ FULL_____lbs. @_____lbs.
TOLERANCE - 0.1% OF BATCH WEIGHT OR 2 LBS., WHICHEVER IS GREATER

applied weight	scale reading	error	accum. error	applied weight	scale reading	error	accum. error

AGGREGATE SCALE - ACCURATE TO 0.5% OF BATCH WEIGHT

SENSITIVITY - EMPTY_____ FULL_____lbs. @_____lbs.
TOLERANCE - 0.1% OF BATCH WEIGHT OR 2 LBS., WHICHEVER IS GREATER

applied weight	scale reading	error	accum. error	applied weight	scale reading	error	accum. error

WATER-ACCURATE TO +/-1.0% OR 2 LBS., WHICHEVER IS GREATER
ADMIXTURES-ACCURATE TO +/-3.0% OF QUANTITY REQUIRED

metered gal.	metered lbs.	scale reading	error	aea meter oz.	aea meas. oz.	water reducer meter oz.	water reducer meas. oz.	retarder meter oz.	retarder meas. oz.